

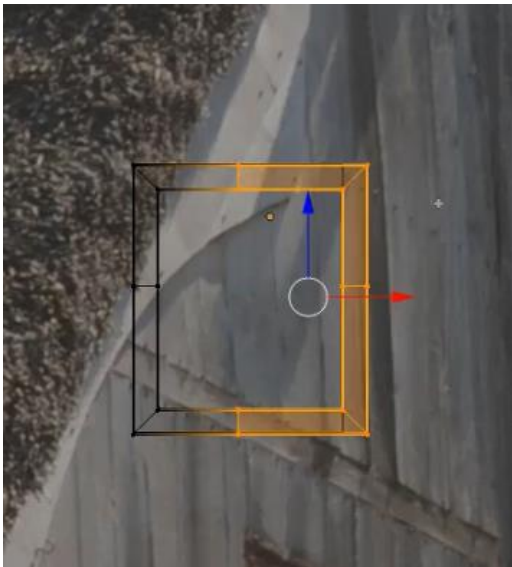
Chapter 4, lesson 45, Front framework (2)

In this lecture we continue the work we did in the previous. There are no new concepts in this lecture documentation. Instead we focus on repetition and the continuation of our modelling. In the end of this lecture we will be done with the framing for the windows.

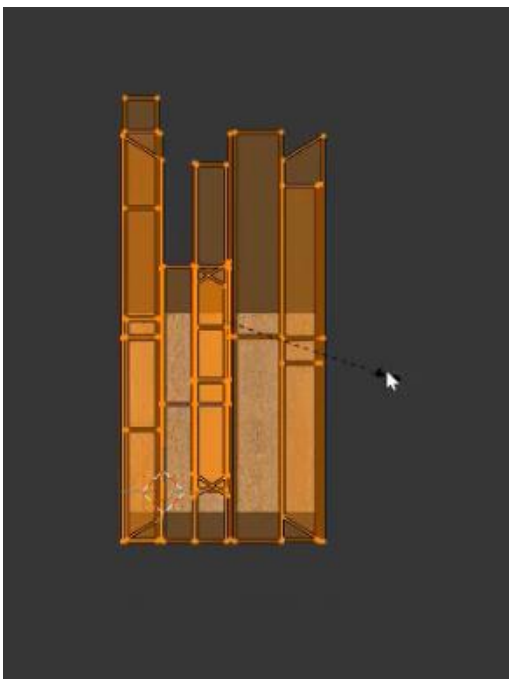
Chapter 4, lesson 45, Front framework (2)

We start by duplicating our window frame again from the second layer with **“Shift+D”**. Then we hit **“M”** with the copy selected and chose the first layer where our building is residing. Go back to the first layer and drag the window frame to one of the top windows.

We scale the frame down slightly before we go into edit mode and decrease the size of the frame. We don't scale it all the way down to fit inside the hole because the borders will be too thin. Instead we go into edit mode and adjust the width and height. Use **“B”** to border select and **“G”** followed by **“X”** or **“Z”** to constrain the movement. Keep in mind that the extra edges that we added will need to be in the middle between the corner of the frames so that the textures don't get stretched. Adjust until it fits in the hole in the building base.



Adjust the UV-map by scaling the UV-islands on the Y axis. Double check in texture view mode to make sure that the scaling looks correct.



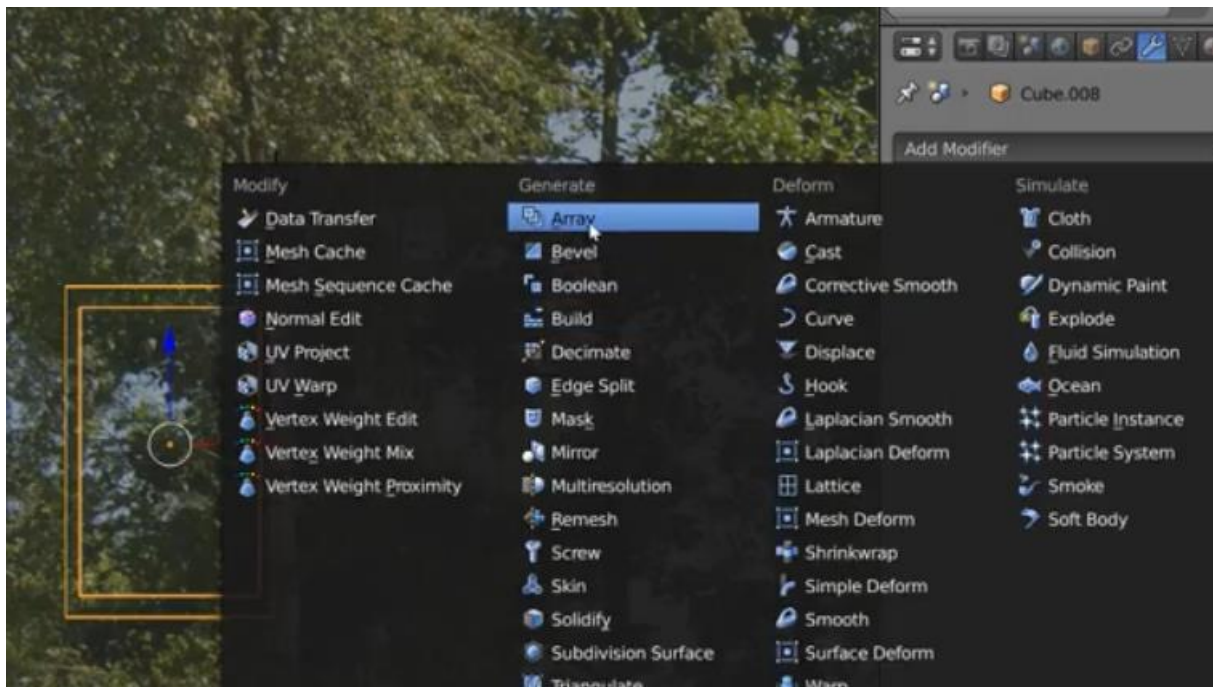
Now you can duplicate the window over to the other side. The front is now complete for this lesson.

To continue we use a new duplicate of our frame template from layer two. This time we will do the frames for the hatches that is located on the left side of the building. Before we rotate the frame around to be aligned with that side of the building though we need to remove the faces on the sides of the frame. This is because we will use the array modifier here to duplicate the frame for each hatch.

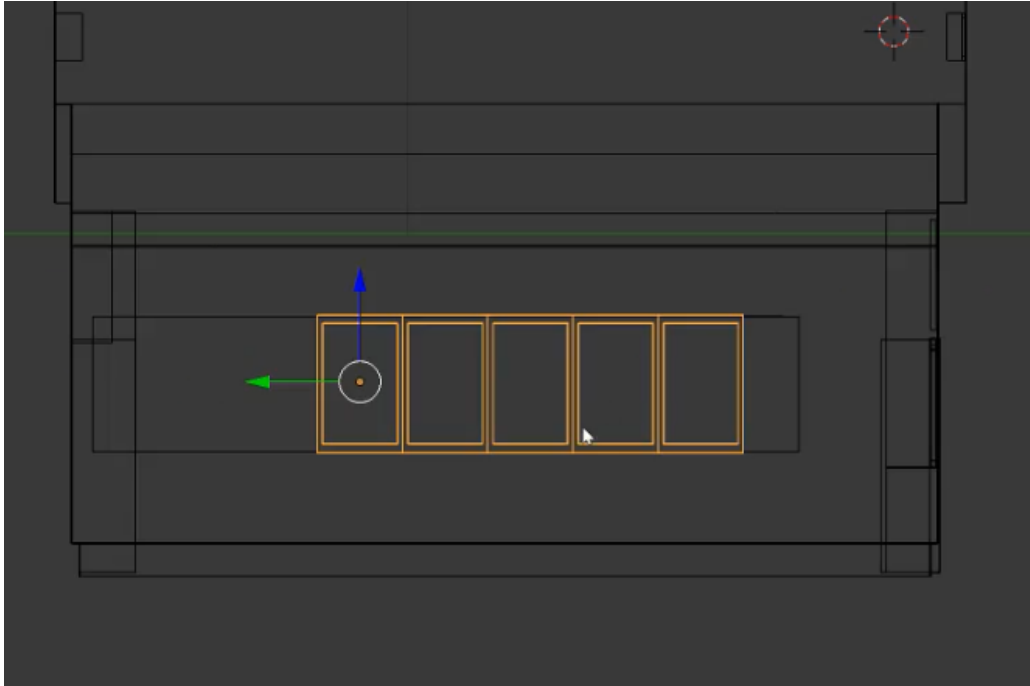
Go to edit mode and use “**B**” to box select one of the sides in front view. Hit “**S**” and “**X**” to align all the vertices you selected to the X axis. Then hit “**X**” and select faces to delete the faces on that side. Do the same for the other side. We are left with a geometry that has holes on either side that will get filled by connecting to a duplicate of itself through the array modifier. Now select one side at a time again and move them in slightly. This is what we are left with.



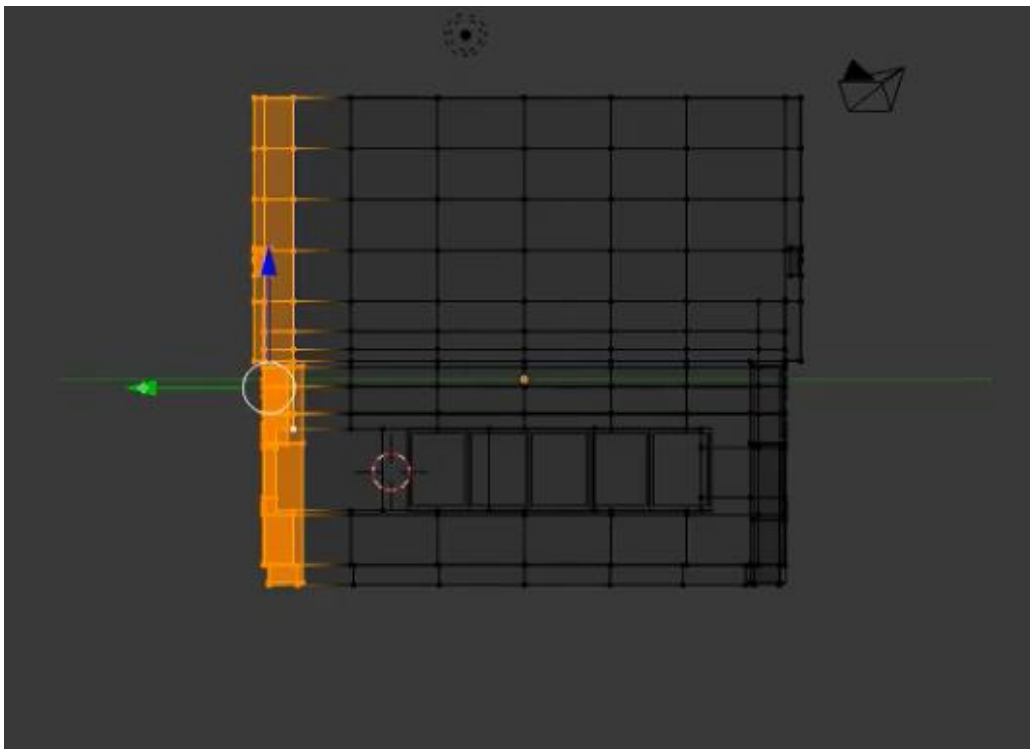
Now we can add the array modifier.



Let's go back and look at our reference. Here we have 6 hatches along the side of this building. For our building though, we will use 5. Use the snapping tool. Instead of going down to the bar below the 3d viewport to toggle it or holding "**ctrl**" to turn it on temporarily while transforming we can instead hit "**shit+tab**" to turn snapping on or off. This works in both object and edit mode. Now rotate the frames by 90 degrees to align the to the side of the building. Adjust the frame size in edit mode to make the frame fit somewhat.

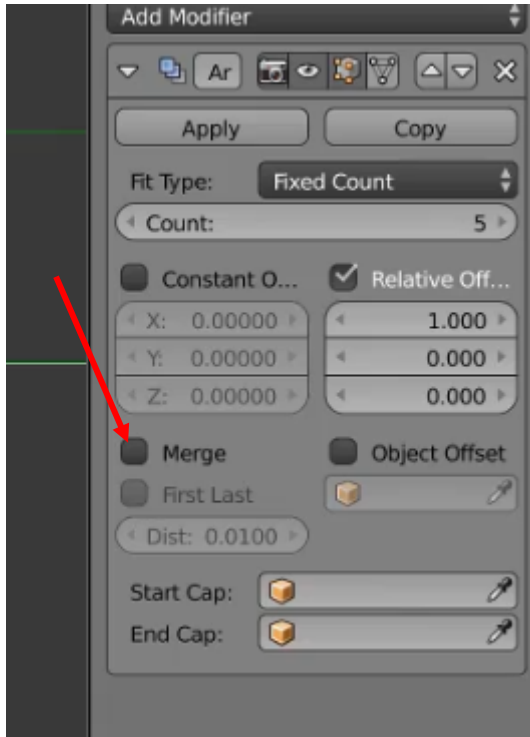


If your frame should be unnaturally wide or tall you can adjust the building base like we do in the video. We select the base and go into edit mode, toggle to wireframe mode to be able to select through the mesh, select the rear of the building and size it down in the Y direction.



When you align the frames make sure to leave a little bit of space inside the hole on the left and right side. When the frames are in place we will apply the array modifier. After applying we will select either side one at a time and drag them out so that there is no gap on either side. Then continue by removing the doubles. In edit mode hit “W” to bring up the specials menu. Choose “Remove Doubles” to remove the duplicate vertices.

If you want the doubles to be removed while we apply the modifier we can do that by checking the “Merge” box in the array modifier. Thanks to Luka Stopic in the course for pointing this out.

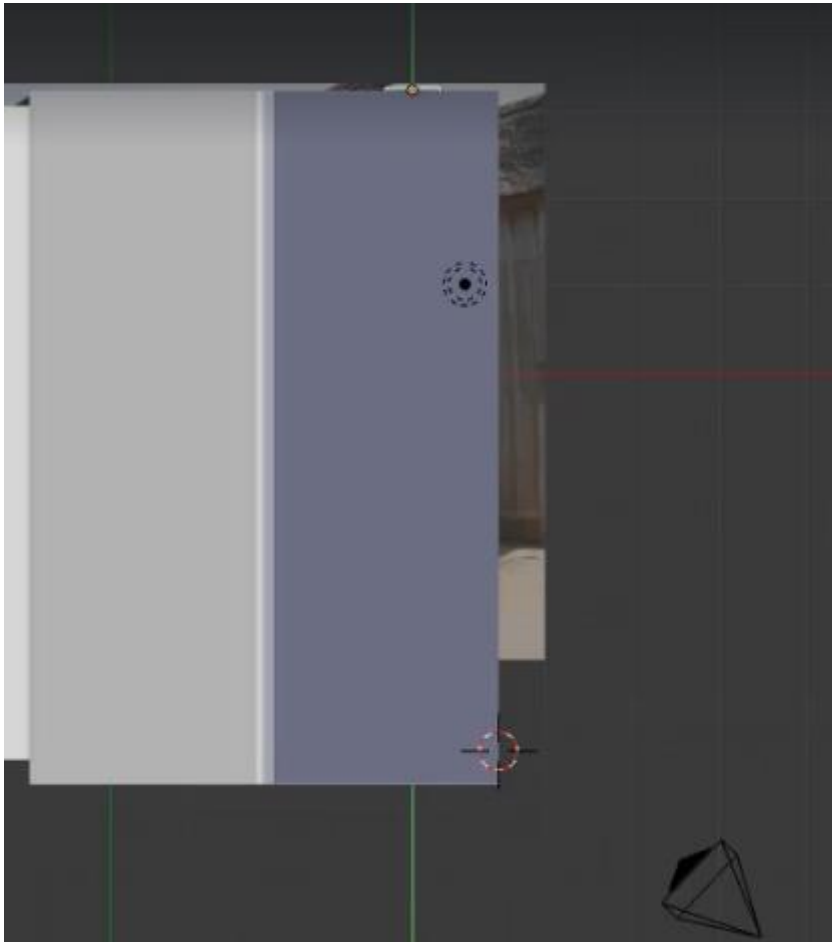


Remember to adjust the depth as well of the frames if it is needed. In the video this part is omitted and presented as a challenge. We will do the same here and if there is any part that you struggle with go back to earlier parts of the documentation and videos to recap. All the steps are previously done multiple times.

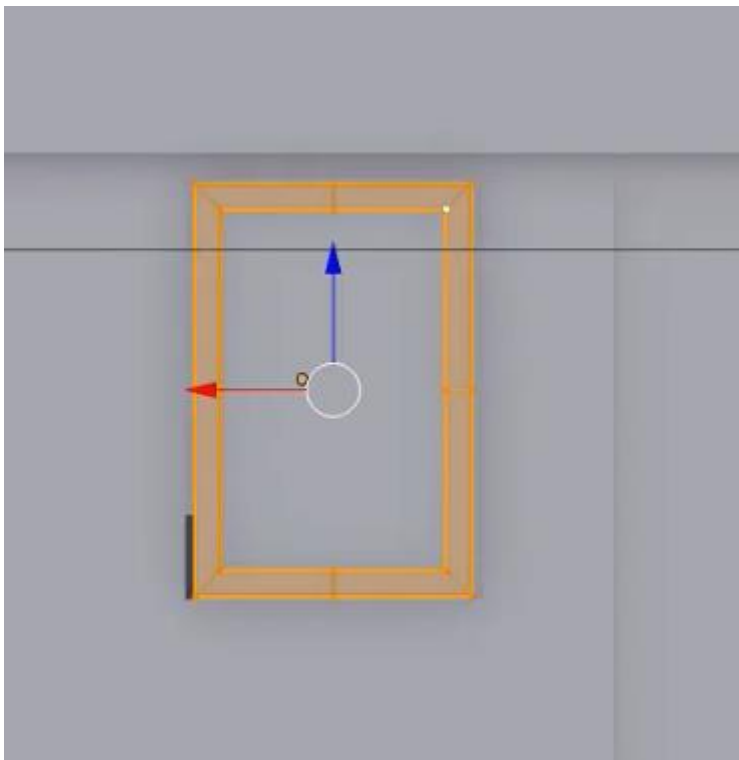
Here is a summary of what we did in the challenge.

- We removed the doubles as stated above.
- We made a “project from view” and adjusted the UV-map
- We duplicated the frames over to the other side.

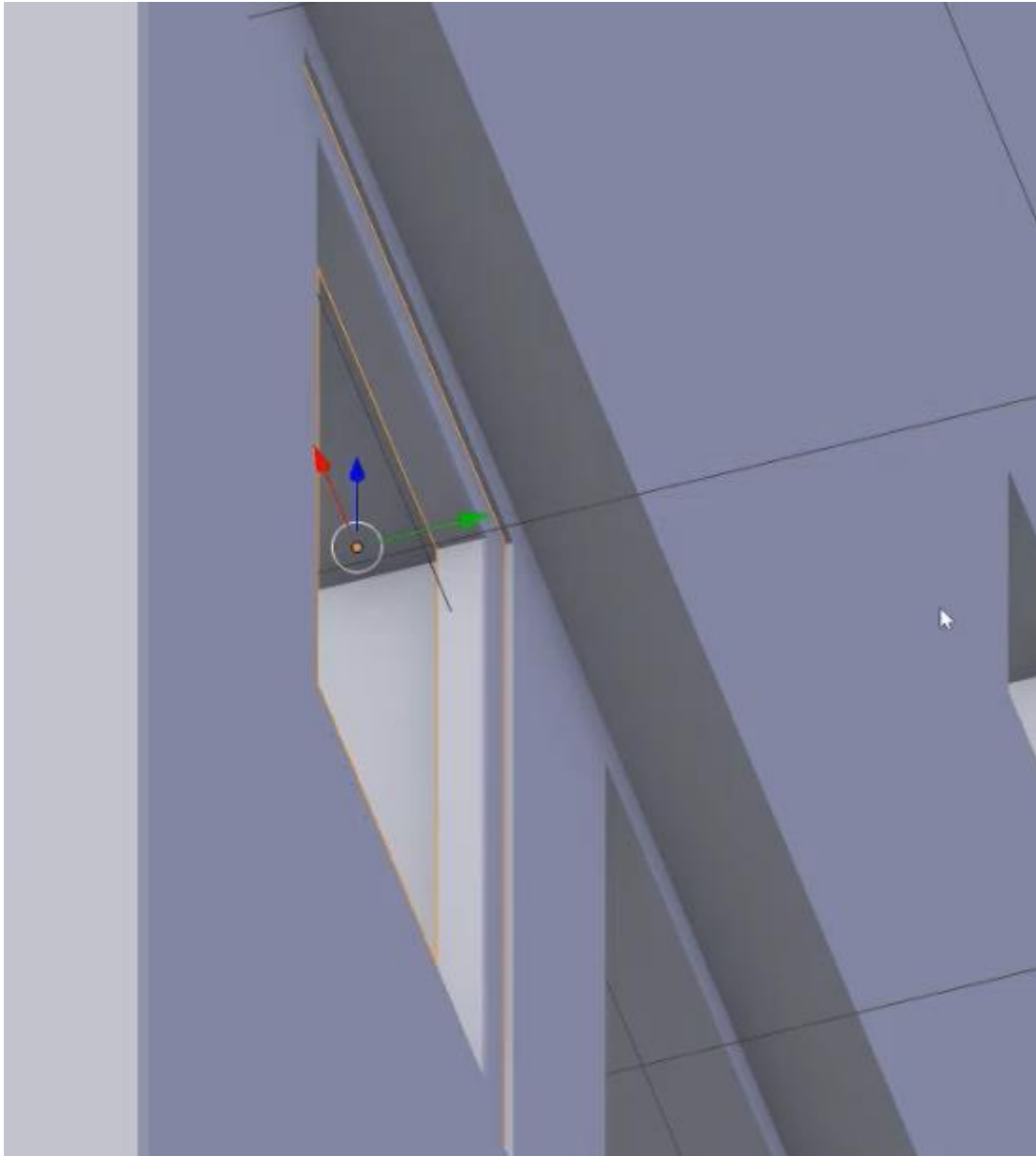
From here we have a few more things to do before we end this lesson. Duplicate a new frame from our second layer. Use snapping to rotate it 180 degrees and move it to the other side of the building.



Position and scale the window frame just like we have done before.



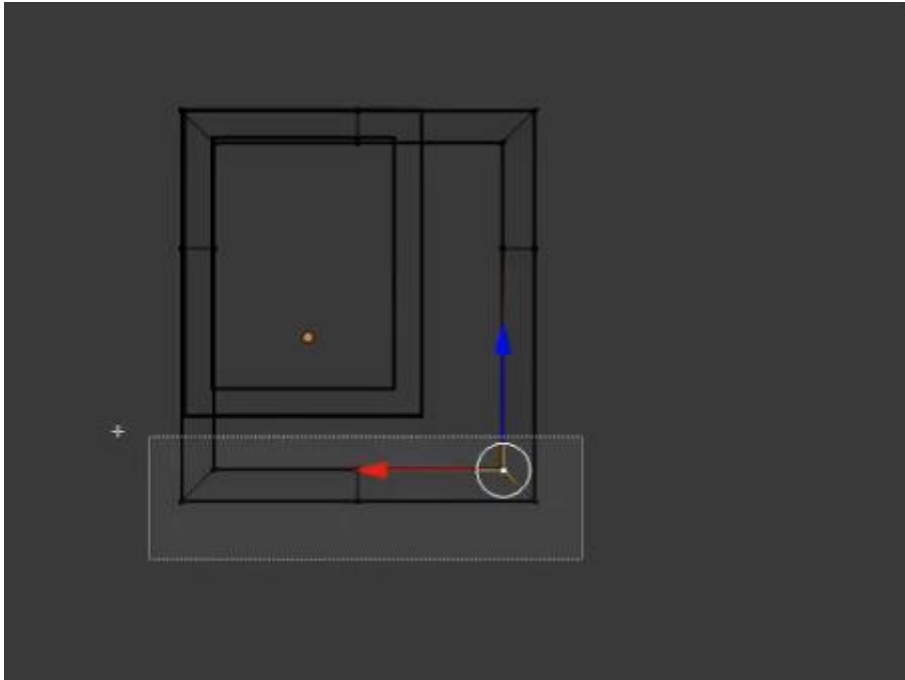
When the window is adjusted drag it into the building. It is very important that it is inside the building like we have done before. All these details add up to create a more realistic result. If you look at most buildings, the window frames are slightly inside. This is to protect them from rain and weather.



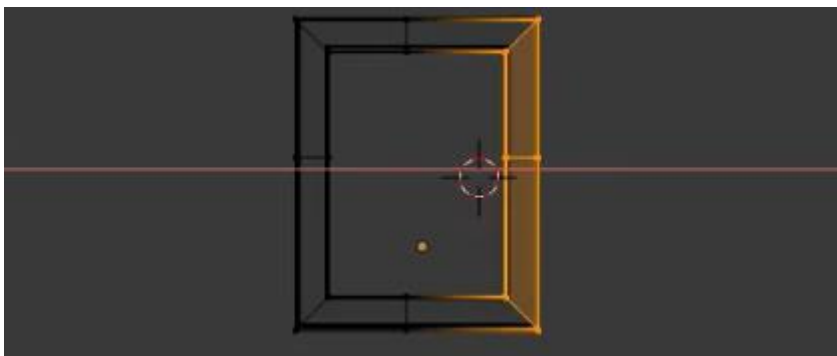
Duplicate the frame over to the other window hole.



Copy it again and rag it up to continue with the smaller second floor windows. Just like on the other side, make sure that you don't scale the frame down to much or the frame will be too thin compared to what it would be in reality. Instead go into edit mode and finish the adjustments.

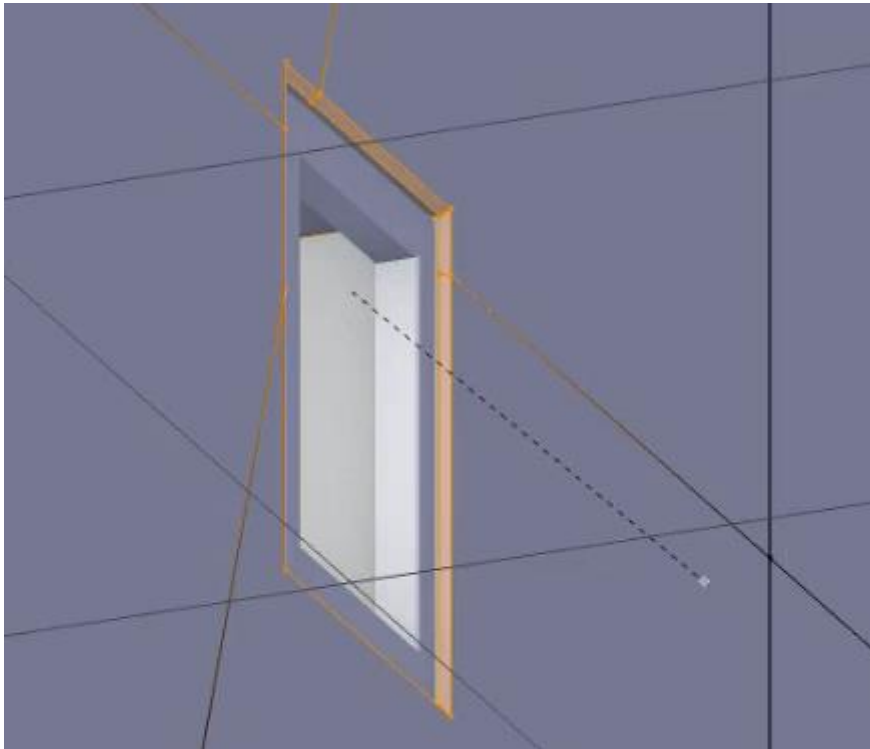


Make sure that the edges between the corners are in the middle of the frames.

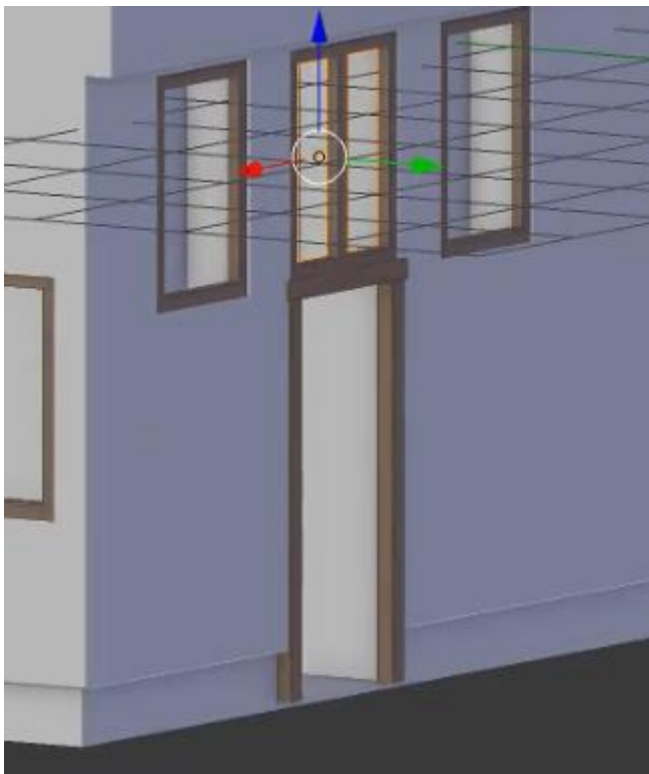


And this is the finished frame for one of the top windows. Drag it into position so that it is not too far into or outside the building. Then duplicate it over to the last second floor window hole.

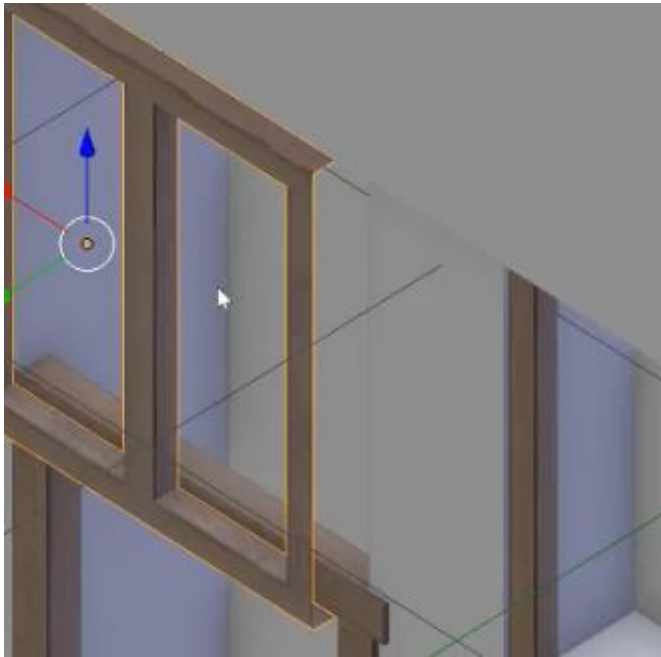
Now we will do some more detail work on the base by adding bevels around the windows. So, start with the hole for the frame we are currently working at. Select the base, go into edit mode and select around the hole. Bevel this edge with **"B"**.



Do the same for the other second floor window as well. Now we have the second challenge for this lecture. Model the window frames above the door on the rear side of the building as well as the two door that are left on this side.



This is the result we should have after the challenge. To get the two window frames to sit beside each other we use the array modifier, removed the sides and removed doubles as well as readjusting the uv-map and reprojecting it from the view. You can see in this shot how the geometry looks.



Now we duplicate the door over to the lower part of the building where we have a Boolean hole that is waiting for it's door to get in place. Now the framing should be complete. To finalize this, we will go around and select the edges of the holes in the base and bevel them slightly. This is the end of this lecture.